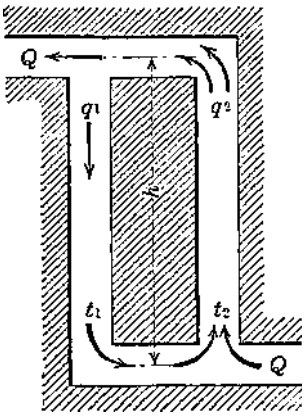
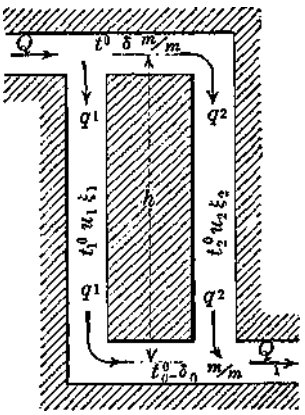


FIG. 47.

indicated in Fig. 47. From the preceding, it may be readily seen that *a current of hot gas which i$ giving off heat or cooling cannot be subdivided into equal ascending currents.* When, however, the attempt is made to subdivide the current of gas *Q* into two equal *descending currents* (Fig. 46), it will be completely successful.

Assuming, for example, that the temperature of one of these currents, *q|*, should become less than the temperature of the current *q%.* In this case the weight of the column of gas *qi* will be increased, and the velocity of its descending motion will be increased. The current of gas *qi* will become stronger than #2, its temperature will gradually increase and it will finally become equal to #2. It can be concluded from this that the problem of subdividing a current of gas which is cooling or giving off heat into equal descending channels may be solved in a very simple manner, owing to the fact that there is always a tendency for the temperatures of these descending streams to remain uniform.



Therefore, *if it is desired to subdivide a current of hot gas which is cooling or giving off heat, into equal streams, it is necessary to give these streams a downward or descending direc-*

*tion of flow] or, in other words, a current which is cooling may be subdivided into uniform descending streams.^*

FIG. 48a.

(1) Accordingly, it is possible to approximate the fractional resistance in the two channels between which the current is divided, when one branch has a higher resistance or a higher heat loss than the other, because the stream of gas divides itself accordingly.

In Fig. 43a, such a case is shown. The stream of gas Q is divided into two descending streams $q|$ and $\#_2$, the average temperatures of which are different, being denoted by $t|$ and $/_2$. The average